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(71) Applicant  
Illuma Lighting Limited

(Incorporated in the United Kingdom)

24-32 Riverside Way, Uxbridge, Middlesex, UB8 2YF,  
United Kingdom

(72) Inventor  
Mark Adam Hawkins

(74) Agent and/or Address for Service  
Saunders & Dolleymore  
9 Rickmansworth Road, Watford, Herts, WD1 7HE,  
United Kingdom

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## (54) Electrical light fitting

(57) An electrical light fitting comprises a cylindrical support (2) having a circular ceiling engaging flange (8) at one axial end and a pair of axially extending side members (10, 12) at the opposite axial end. The side members (10, 12) carry a respective spring finger (20, 22) which cooperate with the flange (8) to hold the support (2) captive in the ceiling (4). A bulb housing (24) includes a cylindrical base (36) which is telescopically accommodated in the cylindrical support (2). The housing carries a bulb socket and a pair of spring fingers (44, 46) which slidably engage a respective channel in the side members (10, 12). Each channel has a detent opening which the spring fingers (44, 46) engage when the bulb housing is pushed into the support (2).

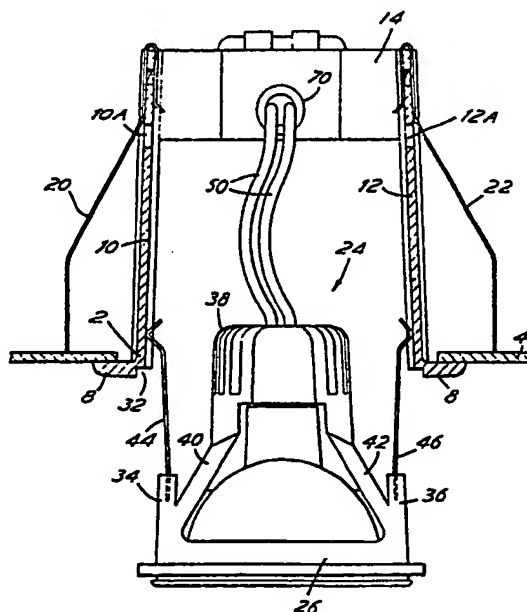


FIG. 3

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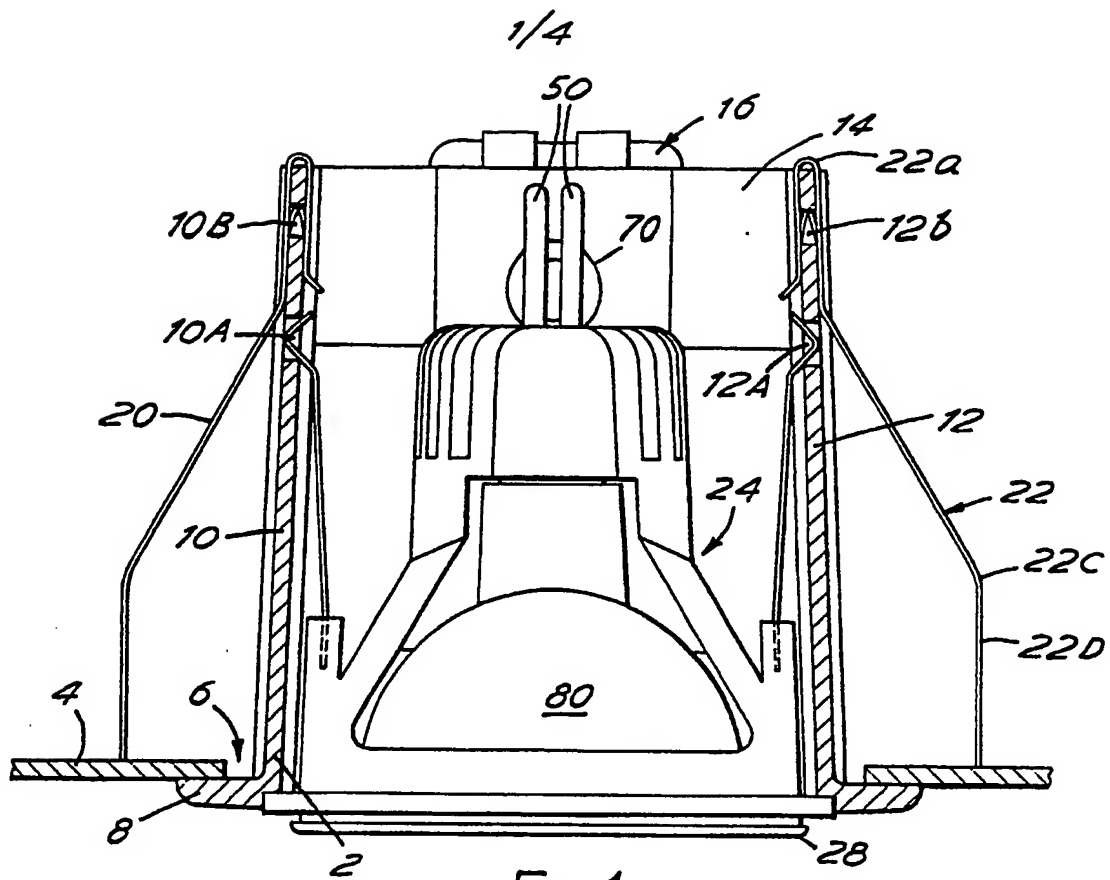


FIG. 1

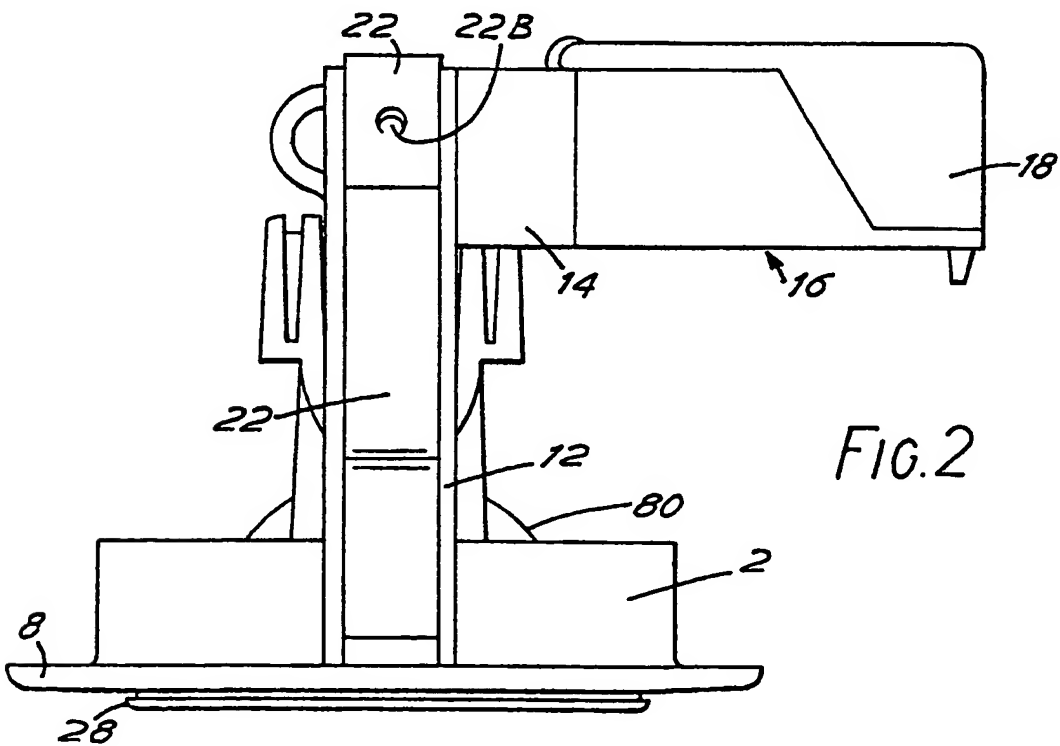


FIG. 2

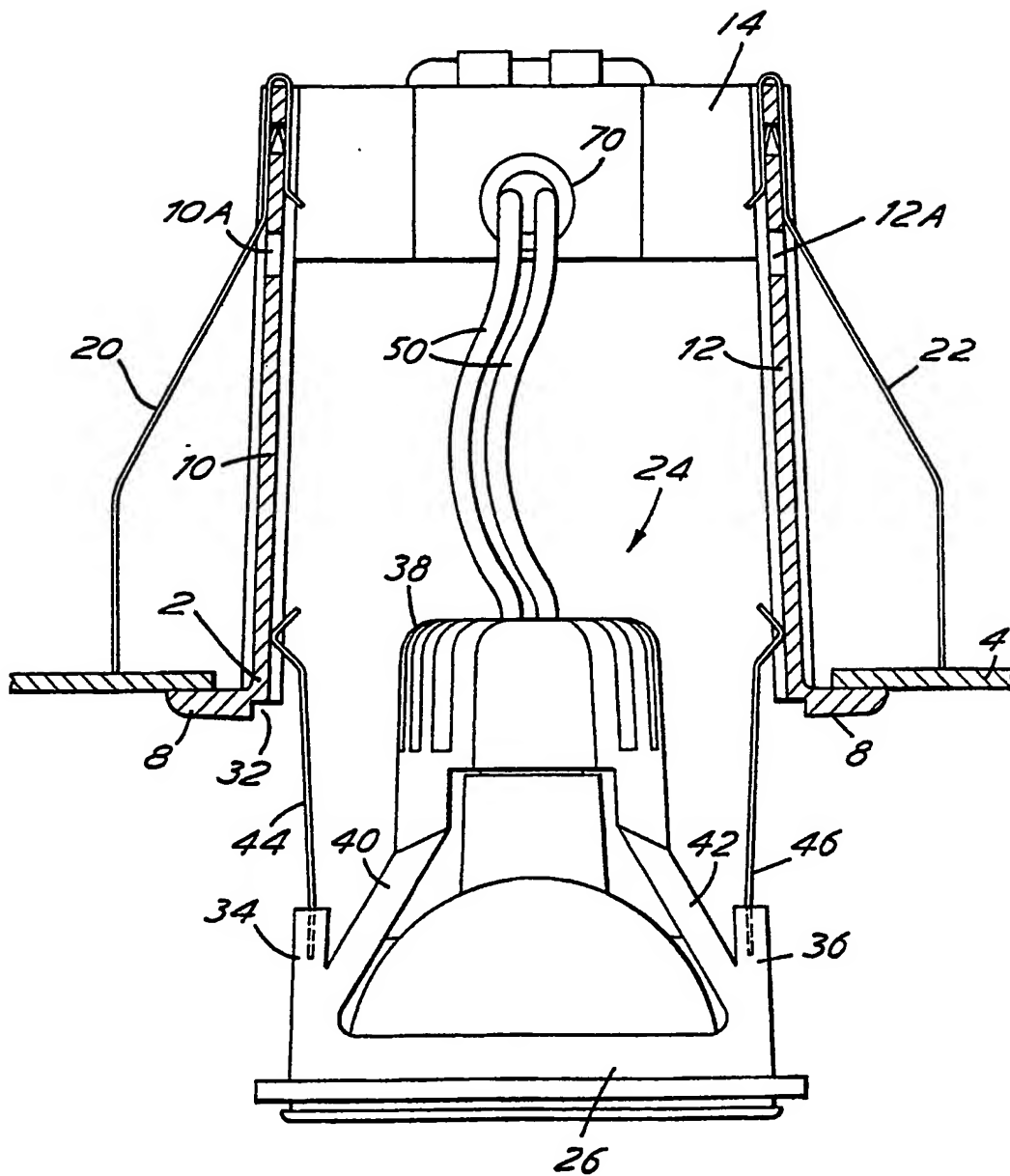


FIG. 3

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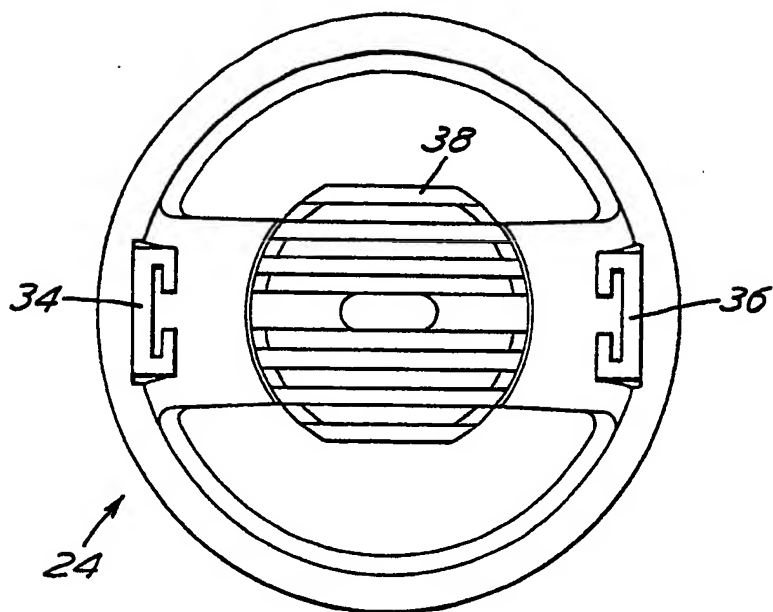


FIG. 4

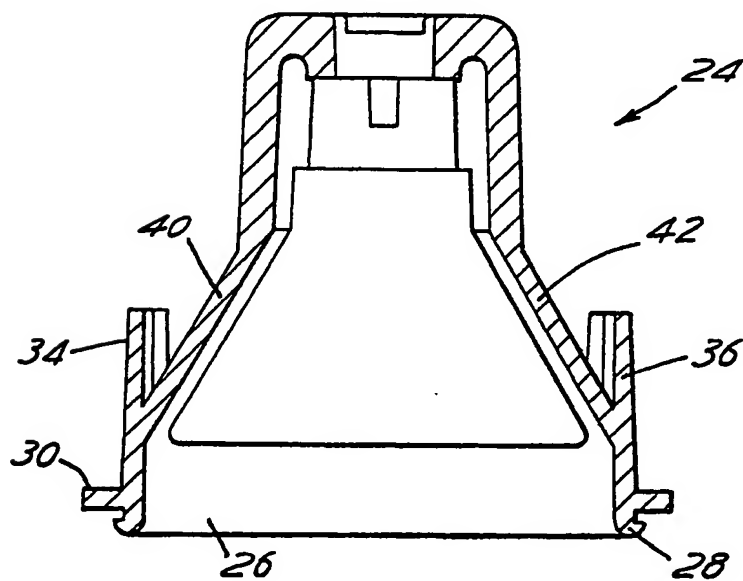


FIG. 5

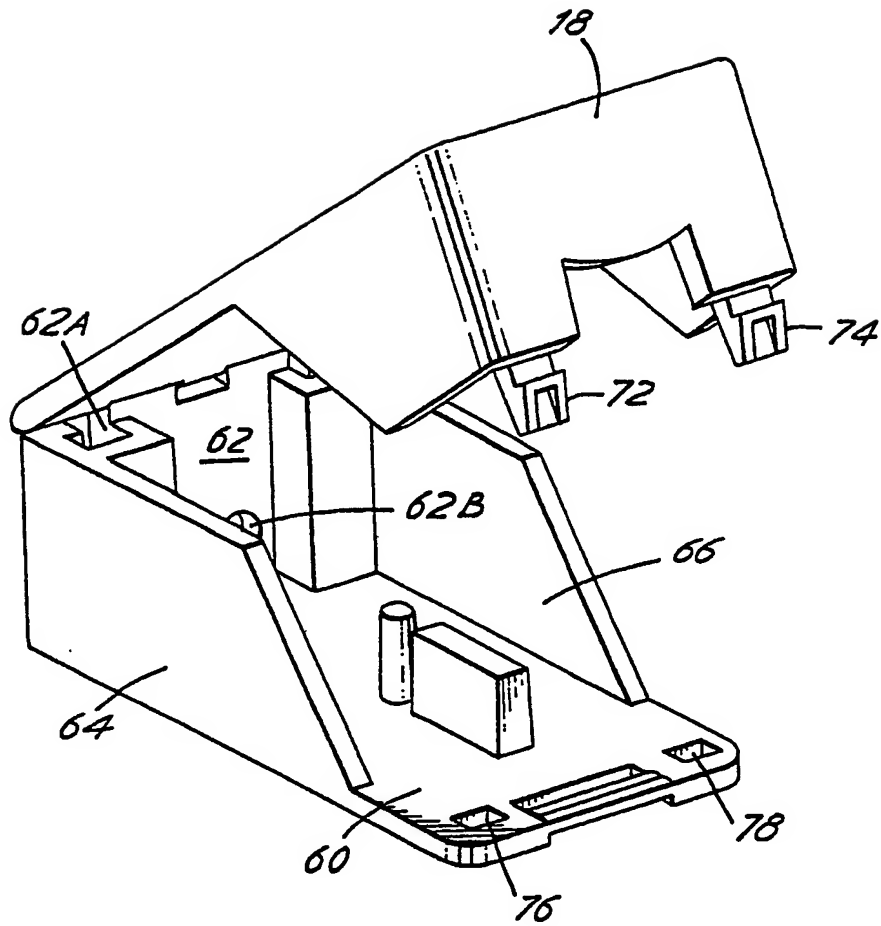


FIG.6

ELECTRIC LIGHT FITTING

The present invention relates to electric light fittings.

5 Recessed electric light fittings are growing in popularity. Such fittings may be powered from a low voltage source (12v).

10 A previously proposed recessed fitting is described in our UK Patent No. 2 154 724 where there is provided a cylindrical support arranged to be positioned into a circular recess in a wall or ceiling. At one axial end of the support there is provided a radially extending circular flange arranged to abut the outer surface of the ceiling surrounding the recess. Extending away from  
15 diametrically opposite sides of the other axial end of the cylindrical support are a pair of side members linked at their distal ends by a transverse member which supports both a lamp socket and electrical convector block. An electrical connection is  
20 provided between the socket and the convector block. A spring finger is supported on each side member resiliently to engage the inner surface of the ceiling surrounding the recess and thereby to imprison the cylindrical support in the ceiling. A  
25 light bulb is fitted into and removed from the socket through the cylindrical support. The light bulb usually has its own reflector which fills the cylindrical support and so once the light fitting is in place and is supplied with a light bulb and  
30 reflector it is difficult to access for the purpose of changing the bulb and for servicing.

It is an object of the invention to provide an improved electrical light fitting.

35 According to the present invention there is provided a light fitting comprising a support

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assembly arranged to be fitted into an aperture in a ceiling, the support assembly having a flange arranged to abut one face of the ceiling and resilient means arranged to engage the opposite side of the ceiling to imprison the support assembly to the ceiling, terminal connection means rigid with the support assembly, a bulb housing arranged to be accommodated in the support member, the bulb housing including a bulb socket connected to the connection means by flexible conductors, and locking means for releasably engaging the support assembly to enable the bulb housing to be locked within the support assembly or to be withdrawn therefrom.

A light fitting embodying the present invention will now be described, by way of example, with reference to the accompanying diagrammatic drawings in which:

Figure 1 is a part longitudinal section through the light fitting accommodating a light bulb;

Figure 2 is a side elevation of the light fitting of Figure 1;

Figure 3 is a part longitudinal section of the light fitting of Figure 1 with the bulb housing in a lowered position;

Figure 4 is a plan view of the bulb housing;

Figure 5 is a longitudinal section through the bulb housing; and

Figure 6 is a perspective view of the terminal block housing of the fitting.

The light fitting shown in Figure 1 has a cylindrical support member 2 arranged to be fitted in a circular aperture 6 in a ceiling 4. The ceiling 4 may comprise plasterboard or other laminar material

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covering an array of ceiling beams, for example.

5 The lower axial end of the support member 2 carries a radially outwardly extending circular flange 8 arranged to abut against the outer surface of the ceiling surrounding the aperture 6.

10 A pair of side members 10 and 12 located on diametrically opposite sides of the support 2 extend from the opposite axial end of the support axially away from the support 2. Each side member is I-shaped in cross-section and the distal end portions of the side members are bridged by a generally arcuate yoke 14. Each side member 10 and 12, because of its I-shaped cross-section, provides two axially extending channels one on each side thereof, and the yoke 14 is attached to the members 10 and 12 so as not to interrupt the channels.

20 The two channels in each side member 10 and 12 are linked at two spaced locations by openings (10A and 10B, and 12A and 12B) in the transverse wall of respective side members 10 and 12.

25 A terminal housing 16 is mounted on the convex face of the arcuate yoke 14 so as to extend radially outwardly of the axis of the cylindrical support and to project beyond the radially outer extremity of the flange 8. The terminal housing 16 has an openable cover to provide access to a terminal connector block (not shown) within the housing 16. Each side member 10 and 12 carries a respective spring finger 20 and 22.

30 The spring finger 22 has a U-shaped portion 22A at one end and a leg portion 22D containing a knee 22C. The U-shaped portion 22A has two inwardly projecting cut out barbs 22B (see Figure 2) and is arranged to fit over the free end of

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the side member 12, so that each leg of the U-shaped portion engages a respective one of the two channels in the side member 12. The U-shaped portion 22A is thus slid onto the end portion of the member 12 until  
5 the two barbs 22B engage the opening 12B to lock the spring finger 22 to the side member 12. The foot of the leg portion 22D is arranged to engage the inner surface of the ceiling so that together with the flange 8 it locks the cylindrical support 2 to the  
10 ceiling. The spring finger 20 is of similar construction and function to the finger 22.

A bulb housing 24 is arranged to be removably accommodated in the cylindrical support 2. As shown in Figures 4 and 5 the housing comprises a  
15 cylindrical base 26 having a radially outwardly extending lip 28 at one axial end and a radially outwardly extending flange 30 located close to, but spaced from, said lip 28. The flange 30 is arranged to be accommodated in an annular recess 32 in the  
20 lower axial end of the cylindrical support 2 (see Figure 1).

The other axial end of the base 26 supports a pair of axially extending diametrically spaced support shoes 34 and 36 of generally C-shaped  
25 configuration (see Figure 4). A heat sink head 38, having a plurality of cooling fins, accommodates a light bulb socket (not shown) and is connected to the base 26, by a pair of axially and radially extending arms 40 and 42. The arms are slightly arcuate in  
30 cross-section.

A pair of spring release fingers 44 and 46 (see Figure 3) are arranged to releasably engage the side members 10 and 12. The foot of each release  
35 finger 44 and 46 is arranged to be push fitted into a respective shoe 34 and 36. To this end the lower

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ends of the release fingers 44 and 46 are provided with barbs (not shown) so that once they engage the shoes 34 and 36 they cannot readily be released.

5 The free or upper ends 44A and 46A of the release fingers 44 and 46 are dog-leg shaped and are arranged to slidably engage the facing channels in the two side members 10 and 12. The openings 10A and 12A provide detent holding apertures for the ends 44A and 46A so that when the openings are engaged by  
10 the ends 44A and 46A they lock the lamp housing 24 in place. Application of sufficient force to overcome the resilience of the spring release fingers will release them from the openings.

A pair of wires 50 extend from the heat  
15 sink head through respective aligned openings in the yoke 14 and the terminal block housing 16 for connection to a terminal block (not shown) within the housing.

The terminal block housing 16 has a  
20 base 60, an end wall 62 and two side walls 64 and 66 upstanding from the base 60. The end wall has a pair of spaced vertical guide slots 62A. Each slot 62A is T-shaped in cross-section. The slots 62A are arranged to slidably engage a pair of parallel T-  
25 shaped rails (not shown) extending vertically on the rear face of the yoke 14, to secure the housing 16 to the yoke 14. The rear wall 62 also has an opening 62B which is arranged to be aligned with a corresponding opening in the yoke 14. A grommet 70  
30 is arranged to engage both holes to lock the housing 16 to the yoke 14 against relative vertical movement and simultaneously to provide a passage for the wires 50 from the heat sink head 38 to the terminal block (not shown) in the housing 16.

35 The cover 18 has a hinge assembly at one

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end which engages the end wall 62, and a pair of resilient locking feet 72 and 74 which are arranged to engage respective openings 76 and 78 in the base 60 to lock the cover to the base 60.

5           In operation the light fitting is offered up to the opening 6 in the ceiling until the leg portions 20D and 22D of the spring fingers 20 and 22 engage the sides of the opening 6. Upon further movement into the opening 6 the spring fingers 20 and 22 are displaced inwardly by cam action against their resilience until their lower ends clear the opening. At this point the lower ends of the fingers 20 and 22 spring apart and abut the inner face of the ceiling. At the same time the flange 8  
10 is hard up against the outer face of the ceiling 4 and so the fitting is now held captive in the ceiling. To change a bulb (Figures 1 and 2 show a composite bulb and reflector 80) the protruding lip 28 is gripped with the finger nails or some  
15 suitable tool and drawn downwardly. The free upper ends 44A and 46A of the release fingers are moved by cam action inwardly to draw them out of their respective openings 10A and 12A so that the whole bulb housing can be drawn partly (as shown in Figure 3) or completely (to the extent allowed by the wires  
20 50) out of the support 2. The bulb can now readily be replaced.

          It will be appreciated that with the lamp housing removed from behind the ceiling, bulb  
30 replacement and maintenance can be more easily carried out. Furthermore it will also be appreciated that the lamp housing can be replaced by another which can accommodate a different sort or type of bulb. The lamp housing can also be adapted to  
35 accommodate a separate reflector where bulbs without integral reflectors are used.

CLAIMS

1. A light fitting comprising a support assembly arranged to be fitted into an aperture in a ceiling, the support assembly having a flange arranged to abut one face of the ceiling and resilient means arranged to engage the opposite side of the ceiling to imprison the support assembly to the ceiling, terminal connection means rigid with the support assembly, a bulb housing arranged to be accommodated in the support member, the bulb housing including a bulb socket connected to the connection means by flexible conductors, and locking means for releasably engaging the support assembly to enable the bulb housing to be locked within the support assembly or to be withdrawn therefrom.
2. A light fitting according to Claim 1 wherein said locking means comprises a pair of spring fingers slidably engageable with guides in said support assembly and resiliently biased against said guides, and a detent opening in said guides for receiving a portion of said spring fingers to releasably lock the fingers to the support assembly.
3. A light fitting according to Claim 1 or to Claim 2 wherein said support assembly has a cylindrical support, and said bulb housing has a cylindrical base arranged to be telescopically coupled to the cylindrical support.
4. A light fitting according to Claim 3 wherein said cylindrical base has a radially outwardly extending flange arranged to be accommodated in a mating annular recess in the flange of the support assembly.
5. A light fitting according to Claim 4 wherein said cylindrical base has a grippable tip portion which stands proud of the flange on the base

of the lamp housing.

5 6. A light fitting according to any preceding claim wherein said support assembly includes a cylindrical support, a pair of diametrically positioned arms extending axially from the support and a yoke bridging the free ends of said arms.

7. A light fitting according to Claim 6 wherein said terminal connection means includes a terminal block housing rigid with said yoke.

10 8. A light fitting according to Claim 7 wherein said terminal block housing and said yoke have mating openings which are engaged by grommet means to lock said housing to said yoke and to provide a passage into said housing for said flexible  
15 conductors.

9. A light fitting according to Claim 7 wherein said housing is slidably keyed in engagement with said yoke.

20 10. A light fitting substantially as hereinbefore described with reference to the accompanying diagrammatic drawings.